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## CLAIMS:

1. An optical transmission method comprising:  
5 selecting a laser from an array of lasers, each laser emitting light at differing wavelengths;  
establishing an optical path from the laser to an optical output, such that light from the laser is transmitted into an optical output; and  
10 adjusting the optical path to maximize output power of the emitted light at the optical output.

2. The method of claim 1 wherein selecting a laser  
15 comprises:  
receiving an indication of a desired wavelength;  
choosing a laser from the array of lasers that has the desired wavelength; and  
20 causing the chosen laser to emit light.

3. The method of claim 1 wherein establishing an optical path further comprises  
25 determining a position that causes an optical element to direct light from the selected laser to the optical output;  
and  
placing the optical element in the determined position.

4. The method of claim 3 further comprising:  
30 measuring output power of the emitted light at the optical output; and  
determining an expected output power that corresponds to the selected laser.  
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5. The method of claim 4 wherein determining an expected output power comprises:

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establishing a lookup table, the table having entries in which individual lasers in the laser array are each assigned an output power value; and

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identifying an entry in the lookup table that corresponds to the selected laser.

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6. The method of claim 4 wherein adjusting the optical path is based on a comparison of the measured output power to the determined expected output power.

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7. The method of claim 4 further comprising generating an adjustment signal based on the comparison of the measured output power and the predetermined output power.

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8. The method of claim 7 further comprising determining a movement direction based on the adjustment signal.

9. The method of claim 4 wherein adjusting the optical path is based on a comparison of the measured output power to the determined expected output power.

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10. The method of claim 7 wherein adjusting the optical path further comprises moving the optical element in a first direction based on the adjustment signal.

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11. The method of claim 4 further comprising:  
generating a power line, the power line representing a functional relationship of output power and positions of the

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optical element; and

determining a slope of the power line.

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12. The method of claim 11 wherein adjusting the optical path further comprises moving the optical element in a first direction based on the slope.

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13. The method of claim 12 wherein adjusting the optical path further comprises moving the optical element in a second direction based on the slope, the second direction being substantially opposite from the first direction.

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14. The method of claim 11 wherein adjusting the optical path further comprises moving the optical element in a first direction when the slope is positive.

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15. The method of claim 14 wherein adjusting the optical path further comprises moving the optical element in a second direction when the slope is negative, the second direction being substantially opposite from the first direction.

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16. The method of claim 11 further comprising determining a local minima of the power line.

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17. The method of claim 16 wherein adjusting the optical path further comprises moving the optical element when the measured output power differs from the local minima.

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18. The method of claim 4 further comprising:  
determining a power function that relates output power

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and positions of the optical element along a plurality of axes; and

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determining a derivative of the power function.

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19. The method of claim 18 wherein adjusting the optical path further comprises moving the optical element when the derivative is positive in a first direction along one of the plurality of axes.

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20. The method of claim 19 wherein adjusting the optical path further comprises moving the optical element when the derivative is negative in a second direction along one of the plurality of axes, the second direction being a direction substantially opposite of the first direction.

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21. The method of claim 4 wherein measuring the output power further comprises:

measuring the output power at a first photodetector proximate the optical output; and

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measuring the output power at a second photodetector proximate the optical output.

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22. The method of claim 21 further comprising determining a power ratio of the measured output power at the first photodetector and the measured output power at the second photodetector.

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23. The method of claim 22 wherein adjusting the optical path further comprise moving the optical element in a first direction if the power ratio is less than a predefined limit.

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24. The method of claim 21 further comprising summing  
5 together the measured output power at the first photodetector  
and the measured output power at the second photodetector.

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25. The method of claim 24 wherein adjusting the optical  
path further comprises moving the optical element in a first  
direction if the summed output power is less than a  
predetermined limit.

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26. The method of claim 1 wherein measuring the output  
power comprises determining a location of light at a  
photodetector proximate the optical output.

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27. The method of claim 24 wherein adjusting the optical  
path further comprises moving the optical element in a first  
direction if the location of the light differs from  
predetermined location.

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28. The method of claim 1 further comprises focusing the  
emitted light into the optical output by placing a lens in the  
established optical path.

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29. The method of claim 1 wherein the optical output  
comprises a fiber.

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30. The method of claim 4 wherein determining an  
expected output power comprises:

establishing a lookup table, the table having entries in  
which individual lasers in the laser array are each assigned a

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predetermined output power value and associated with a  
predetermined location identified for the optical element; and  
5 identifying an entry in the lookup table that corresponds  
to the selected laser.

10 31. The method of claim 30 wherein adjusting the optical  
path is based on a comparison of the measured output power to  
the output power value for the selected laser and a comparison  
of location of the optical element and the predetermined  
location for the optical element for the selected laser.

15 32. The method of claim 30 wherein adjusting the optical  
path further comprises moving the optical element based on the  
predetermined location for the optical element for the  
selected laser and a current location of the optical element.

20 33. An optical transmission control apparatus  
comprising:

an array of lasers;

at least one optical element;

25 an optical output, such that light from a laser from the  
array of lasers is directed into the optical output by the at  
least one optical element; and

30 a controller coupled to the at least one optical element  
and configured to adjust the at least one optical element to  
maximize output power of the light directed into the optical  
output.

35 34. The apparatus of claim 33 wherein the optical output  
comprises a first region that reflects light emitted by a

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selected laser from the array of lasers.

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35. The apparatus of claim 34 further comprising a plurality of photodetectors proximate the optical output; and wherein the controller is coupled to the plurality of photodetectors and configured to adjust the at least one optical element based on the optical power determined by each photodetector.

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36. The apparatus of claim 34 further comprising a plurality of photodetectors proximate the optical output; and wherein the controller is coupled to the plurality of photodetectors and configured to generate an error signal and to adjust the at least one optical element based on the generated error signal.

37. The apparatus of claim 33 wherein the optical output comprises a chiseled fiber.

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38. The apparatus of claim 37 further comprising a plurality of photodetectors located at a periphery of the chiseled fiber, each photodetector configured to receive light reflected from the chiseled fiber and to determine an optical power of the received light at each photodetector; and

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wherein the controller is coupled to the plurality of photodetectors and configured to adjust the at least one optical element based on the optical power determined by each photodetector.

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39. The apparatus of claim 33 further comprising a

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plurality of photodetectors proximate the optical output; and  
wherein the controller is coupled to the plurality of  
5 photodetectors and configured to adjust the at least one  
optical element based on the optical power determined by each  
photodetector.

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40. The apparatus of claim 33 further comprising a  
plurality of photodetectors proximate the optical output; and  
wherein the controller is coupled to the plurality of  
photodetectors and configured to generate an error signal and  
to adjust the at least one optical element based on the  
15 generated error signal.

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41. The apparatus of claim 40 wherein the error signal is  
based on a comparison of the optical power determined and a  
predetermined set of optical power values.

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42. The apparatus of claim 40 wherein the error signal  
is based on a location of light detected by each of the  
plurality of photodetectors.

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43. The apparatus of claim 33 further comprising:  
a first detector, the first detector measuring output  
power at the first detector;  
a second detector, the second detector measuring output  
power at the second detector; and

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wherein the controller determines a ratio of the measured  
output power at the first detector versus the measured output  
power at the second detector and adjusts the at least one  
optical element when the ratio is less than a predefined



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limit.

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44. The apparatus of claim 33 further comprising:

a first detector, the first detector measuring output power at the first detector;

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a second detector, the second detector measuring output power at the second detector; and

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wherein the controller sums the measured output power at the first detector with the measured output power at the second detector and adjusts the at least one optical element when the summed measured output powers exceeds a predetermined limit.

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45. The apparatus of claim 33 further comprising:

a first detector, the first detector measuring output power at the first detector as a first detected power;

a second detector, the second detector measuring output power at the second detector as a second detected power;

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a third detector, the third detector measuring output power at the third detector as a third detected power; and

a fourth detector, the fourth detector measuring output power at the fourth detector as a fourth detected power.

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46. The apparatus of claim 45 wherein the controller is configured to determine a ratio of one of a first, second, third and fourth detected power versus a different one of a first, second, third, and fourth detected power and to adjust the at least one optical element when the ratio differs from a predetermined ratio.

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47. The apparatus of claim 33 further comprising:

a first detector, the first detector measuring output  
power at the first detector as a first detected power;

a second detector, the second detector measuring output  
power at the second detector as a second detected power; and

a third detector, the third detector measuring output  
power at the third detector as a third detected power.

48. The apparatus of claim 47 wherein the controller is  
configured to determine a ratio of one of a first, second, and  
third detected power versus a different one of a first,  
second, and third detected power and to adjust the at least  
one optical element when the ratio differs from a  
predetermined ratio.

49. The apparatus of claim 33 further comprising a  
position detector proximate the optical output and configured  
to determine a location of light incident on the position  
detector.

50. The apparatus of claim 49 wherein the controller is  
configured to adjust the at least one optical element when the  
determined location differs from a predetermined location.

51. The apparatus of claim 33 further comprising a  
detector proximate the optical output and having a plurality  
of regions and configured to measure output power of light  
emitted from a selected laser that strikes each region.

52. The apparatus of claim 51 wherein the controller is

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configured to adjust the at least one optical element based on  
the output power measured at each region.

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53. The apparatus of claim 33 further comprising:  
a detector proximate the optical output and having a  
plurality of regions and configured to determine locations of  
light emitted from a selected laser that strikes the plurality  
10 of regions.

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54. The apparatus of claim 53 wherein the controller is  
configured to adjust the at least one optical element based on  
the determined locations of light.

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55. The apparatus of claim 33 wherein the optical output  
comprises an angled cleaved fiber.

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56. The apparatus of claim 55 further comprising a  
detector proximate the optical output, such that the angled  
cleaved fiber reflects a portion of the light emitted from the  
laser to the detector.

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57. The apparatus of claim 56 wherein the controller is  
coupled to the detector and is configured to adjust the at  
least one optical element based on location of the reflected  
portion of light incident upon the detector.

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58. The apparatus of claim 56 wherein the controller is  
coupled to the detector and is configured to adjust the at  
least one optical element based on optical power measured by  
the detector.

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59. The apparatus of claim 56 further comprising a  
5 second lens that focuses the reflected portion of light to the  
detector.

60. The apparatus of claim 33 further comprising a  
10 wavelength locker having a tap coupled to the optical output;  
and

wherein the controller is configured to adjust the at  
least one optical element based on output power of the light  
detected by the tap of the wavelength locker.

61. The apparatus of claim 33 further comprising a  
wavelength locker being in-line with the optical output; and

wherein the controller is configured to adjust the at  
20 least one optical element based on output power of the light  
detected by the wavelength locker.

62. The apparatus of claim 33 wherein the optical output  
comprises a fiber.

63. An optical transmission control apparatus  
comprising:

an array of lasers having lasers configured to emit  
30 light;

an optical output configured to receive light;

a detector near the optical output;

at least one optical element configured to receive light  
35 from a laser from the array of lasers and to direct a portion  
of the light to the optical output and a portion of the light

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to the detector; and

5 a controller being coupled to the at least one optical element and configured to adjust the at least one optical element to maximize output power of the light directed into the optical output.

10 64. The apparatus of claim 63 wherein the controller is coupled to the detector and is configured to adjust the at least one optical element based on location of the portion of light incident upon the detector.

15 65. The apparatus of claim 63 wherein the controller is coupled to the detector and is configured to adjust the at least one optical element based on optical power of the portion of light measured by the detector.

20 66. The apparatus of claim 63 wherein the portion of light directed to optical output has a greater optical power than the portion of the light directed to the detector.

25 67. The apparatus of claim 63 wherein the at least one optical element comprises a beam splitter.

30 68. The apparatus of claim 63 wherein the at least one optical element comprises a mirror.

35 69. The apparatus of claim 68 wherein the mirror has a front face and a back face, the front face reflecting light to the optical output and the back face reflecting light to the detector.

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5 70. The apparatus of claim 68 wherein the mirror has a front face and a back face, the front face reflecting light to the detector and the back face reflecting light to the optical output.

10 71. An optical transmission control apparatus comprising:

an array of lasers comprising a first laser and a second laser, the first laser configured to emit light and the second laser configured to emit light;

15 an optical output configured to receive light from the first laser;

a detector near the optical output and configured to receive light from the second laser;

20 at least one optical element configured to receive light from the first and second lasers; and

25 a controller being coupled to the at least one optical element and configured to adjust the at least one optical element to maximize output power of the light received by the optical output.

30 72. The apparatus of claim 71 wherein the controller is coupled to the detector and is configured to adjust the at least one optical element based on location of the light received by the detector.

35 73. The apparatus of claim 71 wherein the controller is coupled to the detector and is configured to adjust the at least one optical element based on optical power of the light

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received by the detector.

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74. The apparatus of claim 71 wherein the second laser is adjacent to the first laser.

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75. The apparatus of claim 71 wherein the second laser is a predetermined distance from the first laser.

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76. The apparatus of claim 75 wherein the predetermined distance is based on spacing of the lasers in the array and total distance of an optical path of light emitted from a laser of the array of lasers to the optical output.

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77. The apparatus of claim 75 wherein the predetermined distance is proportional to a distance from the optical output to the photodetector.

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78. The apparatus of claim 71 wherein the first laser is a laser having a wavelength that corresponds to a desired wavelength.

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79. The apparatus of claim 71 wherein the first laser is configured to produce an image that is received by the detector, and the controller is configured to adjust the at least one optical element based on location of the image received by the detector.

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80. An optical transmission control apparatus comprising:

emitting means for emitting light having different

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wavelengths;

output means;

5       optical means for directing light having a particular  
wavelength from the emitting means into the output means; and  
control means coupled to the optical means and for  
adjusting the optical means to maximize output power of the  
10       light directed into the output means.

15       81. The apparatus of claim 80 further comprising  
reflective means for reflecting light from the emitting means  
and directed to the output means.

20       82. The apparatus of claim 81 further comprising sensing  
means for sensing light and is proximate the output means; and  
wherein the control means is coupled to the sensing means  
and adjusts the optical means based on light sensed by the  
sensing means.

25       83. The apparatus of claim 82 wherein the control means  
is coupled to the sensing means and generates an error signal  
to adjust the optical means based on the generated error  
signal.

30       84. The apparatus of claim 83 wherein the error signal is  
based on a comparison of optical power determined by the  
sensing means and predetermined optical power values.

35       85. The apparatus of claim 83 wherein the error signal  
is based on a location of light detected by the sensing means.



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86. The apparatus of claim 83 wherein the error signal is based on ratios of measured output power sensed by the sensing means and the control means adjusts the optical means when the ratios are less than a predefined limit.

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87. The apparatus of claim 83 wherein the error signal is based on addition of measured output power by the sensing means and the control means adjusts the optical means when the measured output power added together exceeds a predetermined limit.

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88. The apparatus of claim 83 wherein the error signal is based on ratios of measured output power sensed by the sensing means and the control means adjusts the optical means when the ratios differ from predefined ratios.

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89. The apparatus of claim 82 wherein the control means is configured to adjust the optical means when the determined location of the optical means differs from a predetermined location.

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90. The apparatus of claim 82 wherein the optical means directs a portion of light from the emitting means to the sensing means.

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91. The apparatus of claim 90 wherein the control means is coupled to the sensing means and adjusts the optical means based on location of the portion of light incident upon the sensing means.

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92. The apparatus of claim 90 the control means is coupled to the sensing means and adjusts the optical means based on optical power of the portion of light measured by the sensing means.

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93. The apparatus of claim 90 wherein the optical means comprises a beam splitter.

94. An optical transmission control apparatus comprising:

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a laser emitting light

an optical fiber;

optical means for directing the light from the laser into a pathway directed to the fiber; and

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control means, coupled to the optical means, for adjusting the optical means to maximize output power of the light directed into the pathway directed to the fiber.

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